

Standard Cutting Conditions and Infeed Methods

Standard cutting conditions

| Work material | Hardness | Cutting speed: v_c (SFM) | | | |
|-----------------------|------------|----------------------------|-----------|-----------|------------|
| | | AH725 | T313V | NS730 | TH10 |
| Carbon steels | < 200HB | 260 ~ 590 | 330 ~ 650 | 500 ~ 650 | – |
| | > 200HB | 200 ~ 525 | 330 ~ 500 | 330 ~ 560 | – |
| Stainless steels | – | 160 ~ 425 | 230 ~ 425 | – | – |
| Cast irons | – | – | 230 ~ 500 | – | 230 ~ 300 |
| Non-ferrous metals | – | – | – | – | 330 ~ 1650 |
| Heat-resisting alloys | – | – | – | – | 30 ~ 130 |
| Hard materials | 50 ~ 60HRC | – | – | – | 30 ~ 100 |

Threading Guidelines

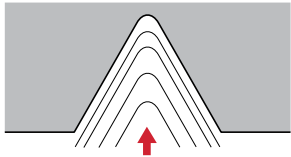



Determine the infeed per pass and number of threads whilst referring to the table and description below.

| Pitch | .020 | .031 | .042 | .050 | .063 | .071 | .083 | .100 | .125 | .143 | .167 | .182 | .200~ |
|----------------|-------|-------|-------|-------|--------|--------|--------|--------|---------|---------|---------|---------|---------|
| No. of threads | 48 | 32 | 24 | 20 | 16 | 14 | 12 | 10 | 8 | 7 | 6 | 5.5 | 5 ~ |
| No. of passes | 4 ~ 6 | 4 ~ 7 | 4 ~ 8 | 5 ~ 9 | 6 ~ 10 | 7 ~ 12 | 7 ~ 12 | 8 ~ 14 | 10 ~ 16 | 11 ~ 18 | 11 ~ 18 | 11 ~ 19 | 12 ~ 24 |

Note:

- When using the full-profile insert, set the total infeed amount by taking the finish stock of 0.1mm into account.
- Set the first infeed to 150 ~ 200% of nose R and do not allow it to exceed 0.5 mm.
- The infeed amount during the final pass must be a minimum of 0.05 mm. No zero cuts should be made. (Extra small infeed or zero cutting of work hardened surfaces will reduce tool life.)
- The partial-profile insert or inside diameter insert has small nose R. Reduce the infeed per pass and increase the no. of passes.
- Regarding standard infeed per passes and no. of passes, please refer to our catalogue.

Infeed Methods for ST-type Tools

| Infeed method | Features |
|---|--|
|  <p>Straight infeed (radial infeed)</p> | <ul style="list-style-type: none"> • Most simple and usual method • Suitable for relatively small pitch threads of easily machinable material. • Chip contact length on right and left is longer, causing chattering, with increased load on the nose end. • When the half included angle is not symmetrical to the right and left, infeeding in the direction of 1/2 of the included angle will ensure equal machining with right and left cutting edges. |
|  <p>Single edge infeed (flank infeed)</p> | <ul style="list-style-type: none"> • Suitable for large pitch threads or easy to tear materials. Effectively prevents chattering. • Chips are discharged in one direction only. Satisfactory chip control. • Edge on the right (with zero infeed) tends to be worn heavily. |
|  <p>Modified single-edge infeed (flank infeed)</p> | <ul style="list-style-type: none"> • Suitable for large pitch threads or easy to tear materials. Effectively prevents chattering. • Chips are discharged in one direction only. Satisfactory chip control. • Edge on the right performs some cutting, therefore wear of this edge can thus be suppressed. |
|  <p>Alternating flank infeed</p> | <ul style="list-style-type: none"> • Suitable for large pitch threads or easy to tear material. Effectively prevents chattering. • Chips are discharged alternately in right and left directions, resulting possibly in entanglement. • Right and left edges are used alternately, ensuring uniform wear and extending tool life. |